

IN THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Claim 1 (Withdrawn): An internal member of a plasma processing vessel, comprising:

a base material; and
a film formed by thermal spraying of ceramic on a surface of the base material, wherein the film is formed of ceramic including at least one kind of element selected from the group consisting of B, Mg, Al, Si, Ca, Cr, Y, Zr, Ta, Ce and Nd, and at least a portion of the film is sealed by a resin.

Claim 2 (Withdrawn): An internal member of a plasma processing vessel, comprising:

a base material; and
a film formed by thermal spraying of ceramic on a surface of the base material, wherein the film has a first ceramic layer formed of ceramic including at least one kind of element selected from the group consisting of B, Mg, Al, Si, Ca, Cr, Y, Zr, Ta, Ce and Nd and a second ceramic layer formed of ceramic including at least one kind of element selected from the group consisting of B, Mg, Al, Si, Ca, Cr, Y, Zr, Ta, Ce and Nd, and at least a portion of at least one of the first and the second ceramic layer is sealed by a resin.

Claim 3 (Withdrawn): The internal member of claim 1, wherein the resin is selected from the group consisting of SI (silicon), PTFE (polytetrafluoroethylene), PI (polyimide), PAI (polyamideimide), PEI (polyetherimide), PBI (polybenzimidazole) and PFA (perfluoroalkoxyalkane).

Claim 4 (Withdrawn): The internal member of claim 1, wherein the ceramic is at least one kind of ceramic selected from the group consisting of B_4C , MgO , Al_2O_3 , SiC , Si_3N_4 , SiO_2 , CaF_2 , Cr_2O_3 , Y_2O_3 , YF_3 , ZrO_2 , TaO_2 , CeO_2 , Ce_2O_3 , CeF_3 and Nd_2O_3 .

Claim 5 (Withdrawn): An internal member of a plasma processing vessel, comprising:
a base material; and
a film formed by thermal spraying of ceramic on a surface of the base material,
wherein the film is formed of ceramic including at least one kind of element selected from the group consisting of B, Mg, Al, Si, Ca, Cr, Y, Zr, Ta, Ce and Nd, and at least a portion of the film is sealed by a sol-gel method.

Claim 6 (Withdrawn): An internal member of a plasma processing vessel, comprising:
a base material; and
a film formed by thermal spraying of ceramic on a surface of the base material,
wherein the film has a first ceramic layer formed of ceramic including at least one kind of element selected from the group consisting of B, Mg, Al, Si, Ca, Cr, Y, Zr, Ta, Ce and Nd and a second ceramic layer formed of ceramic including at least one kind of element selected from the group consisting of B, Mg, Al, Si, Ca, Cr, Y, Zr, Ta, Ce and Nd, and at least a portion of at least one of the first and the second ceramic layer is sealed by a sol-gel method.

Claim 7 (Withdrawn/Currently Amended): The internal member of claim 5, wherein the sealing treatment is executed by using an element of the Group $[[3A]]$ 3a in the periodic table.

Claim 8 (Withdrawn): The internal member of claim 5, wherein the ceramic is at least one kind of ceramic selected from the group consisting of B_4C , MgO , Al_2O_3 , SiC , Si_3N_4 , SiO_2 , CaF_2 , Cr_2O_3 , Y_2O_3 , YF_3 , ZrO_2 , TaO_2 , CeO_2 , Ce_2O_3 , CeF_3 and Nd_2O_3 .

Claim 9 (Currently Amended): An internal member of a plasma processing vessel, comprising:

a base material; and

a film formed on a surface of the base material,

wherein the film has a main layer formed by thermal spraying of ceramic and a barrier coat layer formed of ceramic including an element selected from the group consisting of B, Mg, Al, Si, Ca, Cr, Y, Zr, Ta, Ce and Nd,

wherein the barrier coat layer is a thermally sprayed film and at least parts of pores inside the thermally sprayed film are sealed by a resin.

Claim 10 (Original): The internal member of claim 9, wherein the barrier coat layer is formed of at least one kind of ceramic selected from the group consisting of B_4C , MgO , Al_2O_3 , SiC , Si_3N_4 , SiO_2 , CaF_2 , Cr_2O_3 , Y_2O_3 , YF_3 , ZrO_2 , TaO_2 , CeO_2 , Ce_2O_3 , CeF_3 and Nd_2O_3 .

Claim 11 (Cancelled).

Claim 12 (Currently Amended): The internal member of claim [[11]] 9, wherein the resin is selected from the group consisting of SI (~~silicon~~ silicone), PTFE (polytetrafluoroethylene), PI (polyimide), PAI (polyamideimide), PEI (polyetherimide), PBI (polybenzimidazole) and PFA (perfluoroalkoxyalkane).

Claim 13 (Currently Amended): The internal member of claim [[9]] 31, wherein the barrier coat layer is a thermally sprayed film and at least ~~a portion of~~ parts of pores inside ~~which~~ the thermally sprayed film ~~[[is]]~~ are sealed by a sol-gel method.

Claim 14 (Currently Amended): The internal member of claim [[13]] 31, wherein the sealing treatment is executed by using an element of the Group 3a in the periodic table.

Claim 15 (Original): The internal member of claim 9, wherein the main layer is formed of at least one kind of ceramic selected from the group consisting of B₄C, MgO, Al₂O₃, SiC, Si₃N₄, SiO₂, CaF₂, Cr₂O₃, Y₂O₃, YF₃, ZrO₂, TaO₂, CeO₂, Ce₂O₃, CeF₃ and Nd₂O₃.

Claim 16 (Withdrawn): An internal member of a plasma processing vessel, comprising:

a base material; and

a film formed on a surface of the base material,

wherein the film has a main layer formed by thermal spraying of ceramic and a barrier coat layer formed of engineering plastic formed between the base material and the main layer.

Claim 17 (Withdrawn): The internal member of claim 16, wherein the engineering plastic is selected from the group consisting of PTFE (polytetrafluoroethylene), PI (polyimide), PAI (polyamideimide), PEI (polyetherimide), PBI (polybenzimidazole), PFA (perfluoroalkoxyalkane), PPS (polyphenylenesulfide) and POM (polyacetal).

Claim 18 (Withdrawn): The internal member of claim 16, wherein the main layer is formed of at least one kind of ceramic selected from the group consisting of B_4C , MgO , Al_2O_3 , SiC , Si_3N_4 , SiO_2 , CaF_2 , Cr_2O_3 , Y_2O_3 , YF_3 , ZrO_2 , TaO_2 , CeO_2 , Ce_2O_3 , CeF_3 and Nd_2O_3 .

Claim 19 (Withdrawn): An internal member of a plasma processing vessel, comprising:
a base material; and
a film formed on a surface of the base material,
wherein the film is formed of ceramic including at least one kind of element of the Group 3a in the periodic table and at least a portion of the film is hydrated by vapor or high temperature hot water.

Claim 20 (Withdrawn): An internal member of a plasma processing vessel, comprising:
a base material; and
a film formed on a surface of the base material,
wherein the film has a first ceramic layer formed of ceramic including at least one kind of element of the Group 3a in the periodic table and a second ceramic layer made of ceramic including at least one kind of element of the Group 3a in the periodic table, and at

least a portion of at least one of the first and the second ceramic layer is hydrated by vapor or high temperature hot water.

Claim 21 (Withdrawn): The internal member of claim 19, wherein the film is a thermally sprayed film formed by thermal spraying or a thin film formed by employing a technique for forming a thin film.

Claim 22 (Withdrawn): The internal member of claim 19, wherein the film is formed of ceramic selected from Y_2O_3 , CeO_2 , Ce_2O_3 and Nd_2O_3 .

Claim 23 (Withdrawn): An internal member of a plasma processing vessel, comprising:

a base material; and

a film formed on a surface of the base material,

wherein the film has a first ceramic layer formed of ceramic including at least one kind of element of the Group 3a in the periodic table and a second ceramic layer formed by thermal spraying of ceramic, and at least a portion of the first ceramic layer is hydrated by vapor or high temperature hot water.

Claim 24 (Withdrawn): The internal member of claim 23, wherein the first ceramic layer is a thermally sprayed film formed by thermal spraying or a thin film formed by employing a technique for forming a thin-film.

Claim 25 (Withdrawn): The internal member of claim 23, wherein the first ceramic layer is formed of ceramic selected from Y_2O_3 , CeO_2 , Ce_2O_3 and Nd_2O_3 .

Claim 26 (Withdrawn): The internal member of claim 23, wherein the second ceramic layer is formed of at least one kind of ceramic selected from the group consisting of B_4C , MgO , Al_2O_3 , SiC , Si_3N_4 , SiO_2 , CaF_2 , Cr_2O_3 , Y_2O_3 , YF_3 , ZrO_2 , TaO_2 , CeO_2 , Ce_2O_3 , CeF_3 and Nd_2O_3 .

Claim 27 (Withdrawn): An internal member of a plasma processing vessel, comprising:

a base material; and

a film formed on a surface of the base material,

wherein the film has a hydroxide layer formed of hydroxide including at least one kind of element of the Group 3a in the periodic table.

Claim 28 (Withdrawn): The internal member of claim 27, wherein the hydroxide layer is a thermally sprayed film formed by thermal spraying or a thin film formed by employing a technique for forming a thin film.

Claim 29 (Withdrawn): The internal member of claim 27, wherein the hydroxide forming the hydroxide layer is formed of hydroxide selected from $Y(OH)_3$, $Ce(OH)_3$ and $Nd(OH)_3$.

Claim 30 (Withdrawn): The internal member of claim 27, wherein at least a portion of the hydroxide layer is sealed.

Claim 31 (Currently Amended): ~~The internal member of any one of claims 1, 5, 9, 16, 19, 23 and 27,~~ An internal member of a plasma processing vessel, comprising:
a base material; and
a film formed on a surface of the base material,
wherein the film has a main layer formed by thermal spraying of ceramic and a barrier coat layer formed of ceramic including an element selected from the group consisting of B, Mg, Al, Si, Ca, Cr, Y, Zr, Ta, Ce and Nd,
wherein an anodic oxidized film is formed between the base material and the film,
wherein at least parts of pores inside the anodic oxidized film are sealed by a resin selected from the group consisting of SI (silicone), PTFE (polytetrafluoroethylene), PI (polyimide), PAI (polyamideimide), PEI (polyetherimide), PBI (polybenzimidazole) and PFA (perfluoroalkoxyalkane).

Claim 32 (Currently Amended): The internal member of claim 31, wherein pores in the anodic oxidized film ~~[[is]]~~ are sealed by an aqueous solution of metal salt.

Claim 33 (Cancelled).

Claim 34 (Withdrawn): An internal member of a plasma processing vessel, comprising:
a sintered ceramic body including at least one kind of element of the Group 3a in the periodic table,
wherein at least a portion of the sintered ceramic body is hydrated by vapor or high temperature hot water.

Claim 35 (Withdrawn): The internal member of claim 34, wherein the sintered ceramic body is formed by hydrating of ceramic selected from Y_2O_3 , CeO_2 , Ce_2O_3 and Nd_2O_3 .

Claim 36 (Withdrawn): An internal member of a plasma processing vessel, comprising:

a sintered ceramic body including hydroxide including at least one kind of element of the Group 3a in the periodic table.

Claim 37 (Withdrawn): The internal member of claim 36, wherein the sintered ceramic body includes hydroxide selected from $Y(OH)_3$, $Ce(OH)_3$ and $Nd(OH)_3$.

Claim 38 (New): The internal member of claim 31, wherein the main layer is formed of at least one kind of ceramic selected from the group consisting of B_4C , MgO , Al_2O_3 , SiC , Si_3N_4 , SiO_2 , CaF_2 , Cr_2O_3 , Y_2O_3 , YF_3 , ZrO_2 , TaO_2 , CeO_2 , Ce_2O_3 , CeF_3 and Nd_2O_3 .